DOCUMENT RESUME

ED 194 659 UD 020 983

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TITLE Variations of Practice Location and Supervision in an Inservice Training Program. Minicourse 1 Evaluation Study. Reprint C69-1.
INSTITUTION Far West Lab. for Educational Research and Development, San Francisco, Calif.
PUB DATE 16 May 69
NOTE 18p.

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Compensatory Education; *Discussion (Teaching Technique); Elementary Education; *Inservice Teacher Education; Junior High Schools; *Questioning Techniques; Questionnaires; Staff Development; Student Participation; Teacher Attitudes; Teaching Methods
IDENTIFIERS Minnesota (Minneapolis)

ABSTRACT

This report presents an evaluation of a "minicourse" in effective classroom discussion skills designed for teachers working with educationally disadvantaged children in compensatory programs. Seventeen voluntarily participating teachers received four variations of the course. They were pre and posttested on 12 questioning skills addressed by the training materials. Additionally, teachers were administered questionnaires to determine their attitudes toward the course. Results indicated that there were no differences between trainees given different variations of the course in frequency of use of the questioning skills taught. Teachers did appear to change some questioning behaviors during classroom discussions. This may have contributed to increased pupil participation. Questionnaire responses indicated that the teachers were accepting of the program and followed through on training activities. Tables of data are appended. (MK)

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ED194659

TEACHER EDUCATION DIVISION
PUBLICATION SERIES

VARIATIONS OF PRACTICE LOCATION AND SUPERVISION IN AN INSERVICE TRAINING PROGRAM.

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{Minicourse 1 Evaluation Study}

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REPRINT C69-1

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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UD020983

SEP 5. 1980

Inner City Phase I
Variation of Practice Location and Supervision in an Inservice Training Program

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May 16, 1969

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SEP 2 1980

> Never before has it been so vehemently expressed to the white professional that he is incompetent because so many black children are failing in school, and that he should give up his authority. When in our past history has the white citizenry been told by so many that it is going to burn if it doesn't shape up?
>
> If the problems of urban areas and urban schools are frightening to us, they are also mandating us to re-evaluate objectives, methodology, content, and virtually everything we know (or thought we knew) about education in general (Fantani and Weinstein, 1968).

Increased pressure by parents and low income residents has resulted in numerous programs designed to compensate educationally disadvantaged students. There has been concern shown by educators, politicians, and the general public that schools become 'equal' and 'relevant' for all segments of society. With similar concern, the Laboratory engaged low-income, black (50 to 60%), Minneapolis schools (an elementary and a junior high) to institutionally respond to 'doing something' about 'ghetto' schools.

The objective, as written in the Laboratory's USOE Scope of Work statement was to:

> Develop a program to improve teacher effectiveness with specific student populations. Phase I - to initiate development and field testing of procedures to train teachers of inner city and Indian students in specific technical skills.

Early involvement with Minneapolis administrators and teachers produced interest in teacher classroom discussion skills, with micro-teaching seen as a viable procedure for teaching these skills. It was assumed that acquisition of these skills would improve student achievement and teacher classroom control. The underlying rationale being that of increasing teacher-student interaction and student inquiry rather than continuing didactic and lecture oriented teaching. (See D. Honetschlager, 'Inner City Summer Evaluation,' and 'Inner City Historical Report.')

> Nowhere is the inadequacy of the didactic mode of teaching more apparent than in the ghetto schools. Many have noted the irrelevance of the curricula of these schools; few have observed that their teaching styles reinforce those very characteristics which help to maintain the inferior status of the minority-group member.
>
> The didactic mode requires much passivity of the student. It encourages an authoritarianism of the book, where the printed word becomes the standard of truth. Receptivity to it requires detachment and delay of personal gratification (Stanford Center for R & D in Teaching, 1968).

Thus, this Laboratory sought to change classroom behaviors through an inservice course focused on teacher questioning skills.

Training Design

The basic skill training program used was produced by the Far West Laboratory for Educational Research and Development, entitled "Minicourse One-Effective Questioning in a Classroom Discussion" (Far West Laboratory for Educational R & D, 1968). Based upon earlier work conducted at Stanford University, this course consists of several handbooks and films which were modified to meet specific training and research objectives. Objectives for the course are:

> 1) to change teacher behaviors so as to increase pupil's readiness to respond to discussion questions, 2) to change teacher behavior so as to decrease the amount of teacher participation and increase the amount of pupil participation, 3) to increase the teacher's use of probing behaviors in order to guide the pupil to more complete and thoughtful responses, 4) to reduce teacher behaviors that interfere with the flow of discussion (Far West Laboratory for Educational R & D, 1968).

Each of the four objectives constitutes one sequence in the total training program. The materials included for each sequence are: 1) a 20 minute instructional film which describes the objectives and their relevant behaviors; 2) two versions of a 10 minute behavioral model film in which a teacher models (demonstrates) the use of the relevant behaviors (one version includes visual and audio cues designed to highlight the occurrence

of a relevant behavior); 3) written materials dealing with (a) the psychological and pragmatic rationale for the use of the skills by teachers, and (b) self-evaluation forms to be used during the teacher's viewing of his own performance.

Each trainee was given course materials and attended an orientation session prior to actual training. A substitute teacher was provided during the time when the trainee was out of her regular class for instructional film and video tape viewing. Portable video tape recorders and operators were used in each school to provide the behavior feedback and to store same for subsequent coding. The course was set up as a three day (one hour per day) sequence per instructional phase: 1) view instructional and model films and plan for teach; 2) teach, using skills and view tape playback; 3) reteach and view tape playback. The 15-hour training course was scheduled over a five week period (see Appendix 1 for a detailed summary of a trainee's sequence of activities).

Research Design

All teachers who participated in this skill acquisition program completed the same basic sequence of activities as were outlined above. However, the course was systematically altered to introduce the two experimental variables under study; supervision during video tape feedback, and the teaching location during skill practice. To assess the general effects of these two experimental variables, supervision and practice location, a 2 x 2 research design was used resulting in the following four treatment cells:

1 - supervised macro-teach practice
2 - supervised micro-teach practice
3 - unsupervised macro-teach practice
4 - unsupervised micro-teach practice

The design was used to test three null hypotheses.

1 - there are no differences between supervised and unsupervised trainees in the frequency of use of the 12 questioning skills.
2 - there are no differences between teachers who practice in macro and micro locations in the frequency of use of the 12 questioning skills.
3 - there are no interaction effects for the two variables, supervision and practice location.

Supervision is defined as the addition of a trained observer to the post-teaching video tape playback session. The prime function of the trained supervisor is to facilitate acquisition of specific behaviors by focusing the trainee's attention upon the behaviors he exhibits and pointing out opportunities for the use of these behaviors. The two supervisors who participated in this study were given the following instructions:

> After greeting the subject, take two to three minutes to establish some rapport (no criteria provided). Outline the purpose of the playback-viewing session and the role that you will fulfill. This role is one of helping the trainee observe specific instances in which the relevant training behaviors could have been used. You are to avoid making evaluative type statements, and when pressed to do so by the trainee, you should attempt to be as neutral as possible. In addition to aiding in the observation of behaviors, you are to reinforce all uses of the relevant behaviors and to encourage their increased use in subsequent lessons.
>
> When viewing the first teach of a particular training sequence attempt to provide specific examples of how the use of the behaviors could be increased and encourage the trainee to consider alternatives of his own. When viewing the second teach of a particular sequence again reinforce all increases in the use of relevant behavior and encourage the continued use of these behaviors in all subsequent classroom discussion situations. Make an effort to end each session on a positive (reinforcing) note (Robert Pinney, 1968).

Since supervisor behavior was not observed during the playback sessions, it can only be assumed that these guidelines were followed and that the personal variations in supervisory style were not confounding factors. Those trainees who were unsupervised viewed their practice teach video tapes alone, using only an observation form provided by the training program as a guideline for self-observation (see Appendix 2 for forms).

Practice Location is defined as the environmental characteristics present when the teacher attempts to employ the training-relevant behaviors. In a micro-teaching environment, the teacher is confronted with four to six pupils from his own class who meet in a different room that includes only a portable video tape recording unit and it's operator. The pupils are selected by the teacher in advance and the video tape operator escorts them to and from the micro-teaching room. In a macro-teaching environment, the teacher is confronted with his entire class in the regular classroom, at the regular class time and with only the video tape recorder and it's operator added, i.e. 'real' classroom situation.

Thus, in this skill acquisition study all participating teachers completed the same four sequences of the program as explained earlier, with or without the addition of a supervisor, and in one of the two practice locations.

Dependent Variables

To assess the effects of the basic training program as well as the effects of the two experimental variables, 12 dependent variables were used as criterion measures. Each of these consisted of the frequency with which the teacher exhibited a particular questioning behavior. As a pre-test, each teacher was video tape recorded conducting a ten minute discussion lesson in her regular classroom one week prior to the beginning of the training program. As a post-test, the same procedure was repeated within three days after the completion of the training program. Thus, changes in the mean frequency of occurance for each of the 12 variables in each of the four experimental groups became the basis for comparison. The variables coded were:

1 - number of times teacher used further clarification.
2 - number of higher cognitive questions.
3 - locating incorrect responses.
4 - length of teacher's pause after question.
5 - number of times teacher repeated own question.
6 - number of times teacher answered own question.
7 - number of times teacher repeated pupil answers.
8 - length of pupil responses in words.
9 - number of one-word pupil responses.
10 - percentage of discussion time taken by teacher talk.
11 - number of times teacher used prompting.
12 - number of times teacher used redirection.

Coding procedures, behavioral definitions, and coding forms developed by the Far West Laboratory for the training course were used to obtain the dependent variable data. Two coders observed the pre and post tapes for each trainee, recording the relevant behavior during the 10 minute discussion session. Inter and intra coder reliability were checked on all dependent variables (see Appendix 3 for procedures).

A questionnaire was administered after the post tapes to determine the trainees' attitudes about program effectiveness, extent of perceived behavioral change, needed program modifications, importance of each training location, and advantages and disadvantages of supervision and training location (see Appendix 4 for questionnaire).

Sample

The 20 participating teachers were selected from a list of 40 volunteers, out of a total population of 101 teachers in the two schools. The 40 volunteers were generally representative of the total population in terms of school, grade, and subject area. The final sample was selected so as to maintain this representativeness. Teachers were also assigned to experimental conditions so as to maintain school-grade-subject representativeness in each experimental condition. Table 1 shows a final n of 17 out of the selected n of 20, since one was dropped because of logistical

constraints, one chose not to participate, and one was dropped because the substitute was unable to control her class. No control group was used.

The teacher volunteers were provided with a substitute during the one hour course period per day. No inservice credit or additional pay was granted, since there was no 'out of school' course requirement.

Results

All of the null hypotheses were confirmed: 1) there are no differences between supervised and unsupervised trainees in the frequency of use of the 12 questioning skills; 2) there are no differences between macro and micro locations in the frequency of use of the 12 questioning skills; and 3) there are no interaction effects for the two variables, supervision and practice location.

A multivariate analysis of variance was used with the pre-test data as covariate to the post-test data for each trainee. A two-way analysis was run on each of the 12 dependent variables. The level of significance was set at $p \leq .05$, which was two-tailed for the independent variables and one-tailed for the grand means. The means and F-values of the pre-post data analysis are listed in Table 2.

Independent variable nonsignificance was found for all dependent variables. There was no significant interaction effect (location x supervision). Significance was found between pre-post grand means for seven dependent variables, i.e. using the total 17 trainees in a pre-post test of overall behavior change. There was no test against a control group.

The post-program questionnaire was summarized using frequency of response on each question. The results and summaries are included in Appendix 5. No response analysis was made between groups. The questionnaire was no pre-tested and there was no validity check on teacher response to questions.

All 17 trainees completed the course, were post taped, and completed the post-training questionnaire. There were no provisions for gathering longitudinal data on the trainees which might show retention or behavioral change between training cells.

Discussion

Limitations which influence conclusions to be drawn from the results are: 1) there may be a long term effect which was unmeasured; skill retention was not assessed; 2) the small n per cell (4-5) may have masked some real differences; 3) student achievement and discussion behavior may be unrelated to the skills in the training program; no control groups were included in the design; 4) teacher behavior during pre-and post-taping may not correlate with actual transfer to the on-going classroom discussion; the sampling procedure may be unreliable; and 5) the questionnaire had no check to produce response validity. The results indicate that an inservice training program using video tape feedback and the paradigm of view model,teach, reteach may be effective when conducted in a micro or macro situation and with or without supervision during video tape viewing sessions.

The questionnaire results on supervision (questions 5, 8, and 9 Appendix 5) indicate a general acceptance of, and a specific requirement by teachers for, supervision during video tape playback. However, the pre-post behavioral

analysis did not support the use of a supervisor. The questionnaire results on practice location (question 7, Appendix 5) support both micro and macro teaching, i.e. teachers saw the advantages and disadvantages of each. The questioning skills course, Minicourse One, received teacher support and was evidenced by teacher participation and completion (see also questions 3 and 11, Appendix 5).

There were significant changes in some dependent variable pre-post changes in pupil behavior (see Table 2). Those dependent variable changes which may have contributed to increased pupil participation were: increase in length of teacher pause, reduction of teacher repeating question, reduction of teacher answering question, increase in length of student response, decrease in number of one-word pupil responses, decrease in percent of time in teacher talk, increase in teacher use of redirection. However, the more complex teacher skills (dependent variables) had no significant changes in frequency, e.g. clarification, higher cognitive questions, prompting. This suggests a plateau effect of teacher behavior change resulting in more student participation. There is still a need for increasing practice and effort to get complex questions and clarification into classroom discussion. Some reasons for no increase in more complex teacher questioning are: possible classroom control problems, no pre-discussion planning of complex questions (see questions 6A and B, Appendix 5), and less teacher time being available for complex questions (average teacher talk decreased from 62% to 45%).

The results suggest two implications for use of micro-teaching and Minicourse One in inservice training designs: 1) it was found in this study that teach-reteach could be defined as either micro or macro and that

teachers thought macro more 'real'; there still are unanswered questions as to transfer of skills into regular classroom discussion, i.e. there are no data on transfer and on retention by inservice teachers; and 2) for 'Inner City' teachers, Minicourse One and it's concern with cognitive process and pupil participation may be irrelevant, i.e. that students may not respond with ideal teacher questioning skills if the discussion is irrelevant to the students, and if students have been conditioned to unresponsive discussion behavior. That is, curriculum and teacher style change may be necessary antecedents to effective 'Inner City' teacher discussion behavior change.

Conclusions

1 - Variations in practice location and in supervision produced no significant changes in 12 dependent variables in an inservice questioning skills program.

2 - Teachers accepted, and followed through with a all during school, inservice, no pay, no credit, questioning skills program.

Table 1

Teacher Characteristics

	grade	number white	number black	english	history	home econ.	soc. sci.	soc. stud.	math	training group MA	MAS	MIS	MI
	1	1								1			
	3	2								1	1		
elementary	4	1									1		
	6	2										1	1
	7	2	1			1	1		1		1		2
junior high	8	1	2		2		1			1	1	1	
	9	4	1	2			1	1	1	1	1	2	1
		17											

MA unsupervised macro
MAS supervised macro
MIS supervised micro
MI unsupervised micro

Table 2
Multivariate Analysis of Pre and Post Classroom Discussion Behavior
(pre-test used as covariate)

	pre-post means								F ratio			
	MIS		MI		MAS		MA		location	supervision	lxs	grand mean
	pre	post										
1- number of times teacher used further clarification	3.5	6.5	1.3	4.5	5.2	1.8	3.3	4.8	2.06	.47	1.61	3.24
2- number of higher cognitive questions	4.5	3.3	1.8	2.8	5.8	1.8	5.8	2.0	3.15	.13	1.70	1.68
3- locating incorrest responses	3.0	1.3	9.0	4.5	8.8	4.4	12.0	5.0	.31	.23	.74	2.22
4- length of teacher's pause after question	.8	2.2	1.6	2.1	2.4	2.2	1.9	2.0	1.71	.43	.66	32.32***
5- number of times teacher repeated own question	7.0	2.8	2.5	2.5	5.2	.2	11.0	2.5	1.68	1.58	1.93	9.42***
6- number of times teacher answered own question	2.0	.5	2.5	.5	1.8	.8	5.8	1.3	1.12	.33	.32	5.71*
7- number of times teacher repeated pupil answers	14.5	1.8	13.8	1.8	19.6	.8	16.8	2.0	.21	.61	.51	2.84
8- length of pupil responses in words	1.9	2.8	2.0	2.0	1.8	2.4	1.7	1.7	2.34	5.11	4.43*	14.48**
9- number of one-word pupil responses	7.5	3.0	6.8	9.8	16.0	6.2	16.3	6.3	.68	2.57	2.68	6.03*
10-percentage of discussion time taken by teacher talk	56	40	55	51	66	43	69	48	.20	1.34	.13	12.48**
11- number of times teacher used prompting	2.0	3.0	5.5	1.8	7.6	5.4	2.8	4.8	1.79	.26	.35	3.05
12- number of times teacher used redirection	6.0	8.8	5.3	17.8	14.6	10.6	11.0	11.3	.81	1.48	.68	7.87*

* $p \leq .05$
** $p \leq .01$
*** $p \leq .001$

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